

WHAT IS CLAIMED IS:SUB A²

1. A method for a communications network including a protect channel transmitting protect channel data and working channel transmitting working channel data, the method comprising:
 - transmitting the working channel data via the protect channel upon a disruption in the working channel; and
 - restoring the transmitting of protect channel data, wherein the restoring includes:
 - applying a mesh restoration protocol to the communications network to restore the transmittal of the protect channel data.
2. The method of claim 1 wherein the mesh restoration protocol is a distributed mesh restoration protocol.
3. The method of claim 1 wherein the protect channel data includes at least one of video, voice and data.
4. The method of claim 1 wherein the restoring further includes finding one or more alternate channels to transmit the protect channel data, the one or more alternate channels including connected working and protect channels.
5. The method of claim 1 wherein the communications network is one of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy (SDH).
6. The method of claim 1 wherein the communication network includes a plurality of interconnected nodes, the interconnected nodes having at least one of a working channel and a protect channel.
7. The method of claim 6 wherein the plurality of interconnected nodes transmits a disruption signal upon receiving a signal indicating the disruption, the disruption signal flooding the communication network to determine alternate routes for the protect channel data.

1 8. The method of claim 1 wherein the mesh restoration protocol includes
2 communicating status and control messages across a physical network layer of the
3 communication network.

1 9. The method of claim 8, wherein the status and control messages are
2 communicated using SONET frame overhead bytes.

1 10. The method of claim 1 wherein the mesh restoration protocol includes
2 communicating status and control messages across out-of-band communication
3 channels.

1 11. The method of claim 8, wherein the status and control messages are
2 communicated is via distributed intelligence using a distributed routing protocol.

1 12. An apparatus disposed in a communication network having a protect
2 channel and a working channel, the apparatus comprising:

3 a node controller;

4 a route processor coupled to the node controller, the route processor
5 implementing a mesh restoration protocol;

6 a circuit coupled to the node controller and the route processor, the circuit
7 including:

8 a logic gate for receiving signals identifying disruptions in
9 transmissions in the protect channel and the working channel;

10 a switch responsive to the signals identifying disruptions in
11 transmissions in the protect channel and the working channel,
12 the switch communicating with the route processor to
13 implement mesh restoration of protect channel data.

1 13. The apparatus of claim 12 wherein the circuit is coupled to at least one
2 line card, the line card transmitting the signals identifying disruptions in transmissions
3 in the protect channel and the working channel.

1 14. The apparatus of claim 12 wherein the circuit includes an input/output
2 circuit for receiving instructions identifying criteria for applying mesh restoration to
3 protect channel data.

1 15. The apparatus of claim 14 wherein the criteria are a function of the
2 type of data being transmitted as the protect channel data.

1 16. The apparatus of claim 12 wherein the protect channel data includes at
2 least one of voice, video and data.

1 17. The apparatus of claim 12 wherein the communications network is one
2 of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy
3 (SDH).

1 18. The apparatus of claim 12 wherein the communication network
2 includes a plurality of interconnected nodes, the interconnected nodes.

1 19. The apparatus of claim 12 wherein the route processor communicates
2 with a plurality of interconnected nodes and transmits a disruption signal upon
3 receiving a signal indicating the disruption, the disruption signal flooding the
4 communication network to determine alternate routes for the protect channel data.

1 20. The apparatus of claim 19 wherein the route processor implements a
2 mesh restoration protocol that includes communicating status and control messages
3 across SONET overhead bytes of the communication network.

1 21. An apparatus disposed in a communication network, the apparatus
2 comprising:
3 means for receiving signals/identifying a disruption in a working channel, the
4 disruption causing the working channel data to be transmitted via a
5 protect channel upon a disruption in the working channel; and
6 means for restoring the transmitting of protect channel data coupled to the
7 means for transmitting the working channel data, wherein the means

8 for restoring includes means for applying a mesh restoration protocol
9 to the communications network to restore the transmittal of the protect
10 channel data.

11 22. The apparatus of claim 21 wherein the protect channel data includes at
12 least one of video, voice and internet protocol (IP) data.

1 23. The apparatus of claim 21 wherein the means for restoring further
2 includes means for finding one or more alternate channels to transmit the protect
3 channel data, the one or more alternate channels including connected working and
4 protect channels.

1 24. The apparatus of claim 21 wherein the communications network is one
2 of a Synchronous Optical Network (SONET) and a Synchronous Digital Hierarchy
3 (SDH).

1 25. The apparatus of claim 21 wherein the communication network
2 includes a plurality of interconnected nodes, the interconnected nodes having at least
3 one of a working channel and a protect channel.

1 26. The apparatus of claim 25 wherein the plurality of interconnected
2 nodes transmits a disruption signal upon receiving a signal indicating the disruption,
3 the disruption signal flooding the communication network to determine alternate
4 routes for the protect channel data.

1 27. The apparatus of claim 21 wherein the apparatus is coupled to a node
2 controller coupled to a line card, the line card being one of a plurality of line cards
3 disposed in a management bay holding one or more line cards configured to transmit a
4 plurality of signals.

1 28. The apparatus of claim 21 wherein the apparatus includes a plurality of
2 circuits disposed in a plurality of linked nodes, each circuit coupled to a node
3 controller associated with one of the plurality of linked nodes.

1 29. A computer program product for a communications network including
2 a protect channel transmitting protect channel data and working channel transmitting
3 working channel data, the computer program product comprising:
4 signal bearing media bearing programming adapted to:
5 transmit the working channel data via the protect channel upon a disruption in
6 the working channel; and
7 restore the transmitting of protect channel data, wherein the restoring includes
8 applying a distributed mesh restoration protocol to the communications
9 network to restore the transmittal of the protect channel data.